

Attorney Docket No.: 124325/11908 (21635-0113)  
Application No.: 10/691,009

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### **REMARKS**

This application has been reviewed in light of the Office Action of January 24, 2005. Claims 1-18 are pending. Claims 1-12 are rejected, and claims 13-18 are withdrawn. In response, the following remarks are submitted. Reconsideration of this application is requested.

Claims 1-12 are examined, and the Office Action Summary indicates that claims 1-12 are rejected. However, the Detailed Action includes no rejection of claims 11-12.

#### **I. Restriction**

Applicant affirms the election of the claims of Group I, claims 1-12. Applicant traverses the restriction for the following reasons.

First, the restriction is based upon an assertion that the claimed article may be made by another and materially different process. The proposed "process" is "mechanical joining of the rotor ring to the blades and to the hub". Applicant is not certain what this means, but the joining of the ring to the disk hub and to the turbine blades is specified.

Second, it is asserted that the article and the method have acquired separate status in the art, based upon different patent office classifications. In fact, they have only a separate status in the patent office classification system, and there is no showing that they have a separate status in the art. Patent office art classifications are administrative conveniences developed in the patent office. There has been no showing that they bear any relation to the manner in which those skilled in the art view the art. Hence, there is no support for the assertion that they "have acquired a separate status in the art". If the Examiner intends to rely upon this concept of separate status in the art to support the restriction, Applicant asks that the Examiner set forth the factual basis to demonstrate that those skilled in the art, rather than

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those who establish the patent office classification system, would view the article and the method as having acquired separate status.

Third, there is no undue burden placed on the patent office by examining all of the claims of Groups I and II.

The different patent office classifications simply mean that the claims might otherwise be referred to different examining groups—it does not mean that an examiner in either examining group should not perform a search covering both art classifications. To conduct a proper examination of the claims of either Group, the art of both class 416, subclass 213R and class 23, subclass 889.21 should be searched to meet the thoroughness requirement of the rules, because these classes/subclasses have now been recognized by the Examiner to include relevant art. The art class dealing with a method may contain a reference that incidentally discusses a final structure that is pertinent to the present invention, and the art class dealing with an article may contain a reference that incidentally discusses a pertinent method. The rules provide:

"On taking up an application for examination or a patent in a reexamination proceeding, the Examiner shall make a thorough study thereof and shall make a thorough investigation of the available prior art relating to the subject matter of the claimed invention. The examination shall be complete with respect both to compliance of the application or patent under reexamination with the applicable statutes and rules and to the patentability of the invention as claimed, as well as with respect to matters of form, unless otherwise indicated. [37 CFR 1.104(a)].

There has been no showing that a search of these two art classes/subclasses would pose a serious burden on the Examiner, and both should be searched. Multiple art classes/subclasses are routinely searched when applications are examined, and there is no reason that all of the art classes/subclasses identified by the Examiner as relevant cannot be searched in this case. MPEP 803 states:

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"If the search and examination of the entire application can be made without serious burden, the Examiner must examine it on the merits, even though it includes claims to distinct or independent inventions." [Emphasis added]

Given that 37 CFR 1.104(a) mandates a thorough examination, which would presumably include searching in both art classes, the mandate of MPEP 803 requires that both inventions be examined. If the restriction is maintained, Applicant asks that the Examiner demonstrate why a search of both classes/subclasses would pose a serious burden, and in fact why both classes/subclasses should not be searched to meet the thoroughness requirement. Applicant wants a thorough search of its invention, and is concerned that the search may be less than thorough if certain search classes are arbitrarily excluded for restriction reasons.

Fourth, the restriction is made pursuant to 35 USC 121. The claims must be shown to be "independent and distinct" to maintain the restriction, 35 USC 121, 37 CFR 1.141, MPEP 802. Since this requirement is statutory, it is not proper to interpret the statute in any other fashion. 35 USC 121 provides no basis for restriction on the ground that the patent office has classified the inventions of the various claims into different art classifications and search fields. In this case, the claims are neither independent nor distinct.

The restriction asserts that the inventions are "distinct", but does not address the question of whether the inventions of Groups I and II are "independent", as required by the statute, the regulation, and the MPEP.

Applicant submits that the inventions of Groups I and II are not "independent". The term "independent" is defined in MPEP 802.01:

"The term 'independent' (i.e., not dependent) means that there is no disclosed relationship between the two or more subjects disclosed, that is, they are unconnected in design, operation, or effect..."

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The restriction can be made only "if it can be shown that the two or more inventions are in fact independent...", MPEP 806.04.

As made quite clear in the specification, the subject matter of Groups I and II are not "independent". Specifically, the disclosed relationship is that of article made and method for making the article.

The inventions are also not distinct. MPEP 806.05(f) provides that the inventions are distinct if " ... the process as claimed can be used to make other and different products." (emphasis in MPEP) The present argument of distinctness relies on this provision of the MPEP. For the reasons stated above in relation to point (1), the two hypothetical articles that are said to be producible by the present method do not support the restriction.

For these reasons, the claims are not "independent and distinct". They are neither, and therefore should be examined in the same application, pursuant to the various statutes, regulations, and MPEP sections set forth herein. Applicant asks that the Examiner reconsider and withdraw the restriction requirement as to Groups I and II.

## **II. Action on the Merits**

### **A. Rejections under 35 USC 102(b)**

The following principle of law applies to sec. 102 rejections. MPEP 2131 provides: "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. The identical invention must be shown in as complete detail as is contained in the ... claim. The elements must be arranged as required by the claim..." [citations omitted] This is in accord with the decisions of the courts. Anticipation under section 102 requires 'the presence in a single prior art disclosure of all elements of a claimed invention arranged as in that claim.' Carella v. Starlight Archery, 231 USPQ 644, 646 (Fed. Cir., 1986), quoting Panduit Corporation v. Dennison Manufacturing Corp., 227 USPQ 337, 350 (Fed. Cir., 1985)

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Thus, identifying a single element of the claim, which is not disclosed in the reference, is sufficient to overcome a Sec. 102 rejection.

**1. Rejection under 35 USC 102(b) over Barth**

Claims 1 and 8-10 are rejected under 35 USC 102 over Barth US Patent 3,571,906. Applicant traverses this ground of rejection.

Claim 1 recites in part:

"a bladed ring including  
a ring, and  
a plurality of turbine blades affixed to the ring...;  
a central disk hub;"

Barth has no such disclosure. Barth discloses that "...the rotor blades 11 in the most economical rotor manufacture are integral with the blade deck 13 which must be suitably attached to the hub 15 at the interface 17." (col. 3, lines 41-44). That is, the turbine blades are not "affixed" to the blade deck 13, but instead are formed out of the same piece of metal as the blade deck 13, which is further supported by the hatched Figures 2 and 8 showing the blade deck 13 and the turbine blades 11 to be the same piece of material.

Claim 1 further recites in part:

"a solid state weld joint between the central disk hub and the ring of the bladed ring" [emphasis added]

Barth has no such disclosure. The explanation of the rejection asserts at page 3, lines 14-15 that there is a solid state weld joint (not numbered) present, but no reference to the location of such a disclosure in the text of Barth is set forth. Applicant has carefully studied the text of Barth and can find no such disclosure.

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Barth discusses friction welding, but does not indicate whether the contemplated friction welding produces a solid state weld joint, as claimed, or a liquid state weld joint resulting from melting at the interface. If the rejection is maintained, Applicant asks that the Examiner indicate the precise location in Barth where there is a disclosure of a "solid state" weld joint.

A solid-state weld joint, as distinct from other types of weld joints and other types of joints, was chosen for the reasons discussed in para. [0013] and [0026]-[0029] of the present Specification. Unless the prior art reference discloses such a "solid state" weld joint, it cannot anticipate the claimed invention.

Claim 8 recites in part: "the turbine blades are bonded to the ring". The explanation of the rejection does not address claim 8, and Applicant can find no disclosure of this limitation in Barth. As discussed above, Barth discloses that the blades are integral with the blade deck. If the rejection is maintained, Applicant asks that the Examiner indicate the precise location in Barth where there is a disclosure that "the turbine blades are bonded to the ring."

Claim 9 recites in part: "the turbine blades are mechanically affixed to the ring but not bonded to the ring." The explanation of the rejection does not address claim 9, and Applicant can find no disclosure of this limitation in Barth. As discussed above, Barth discloses that the blades are integral with the blade deck. If the rejection is maintained, Applicant asks that the Examiner indicate the precise location in Barth where there is a disclosure that "the turbine blades are mechanically affixed to the ring but not bonded to the ring."

Claim 10 recites in part: "the weld joint is a solid state inertia weld joint." The explanation of the rejection does not address claim 10, and Applicant can find no disclosure of this limitation in Barth. If the rejection is maintained, Applicant asks that the Examiner indicate the precise location in Barth where there is a disclosure that "the weld joint is a solid state inertia weld joint".

Applicant asks that the Examiner reconsider and withdraw this ground of rejection.

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## 2. Rejection under 35 USC 102(b) over Bonneville

Claims 1 and 8-10 are rejected under 35 USC 102 over Bonneville US Patent 3,763,549. Applicant traverses this ground of rejection.

Claim 1 recites in part:

"a solid state weld joint between the central disk hub and the ring of the bladed ring" [emphasis added]

Bonneville has no such disclosure. The explanation of the rejection asserts at page 4, lines 1-2 that there is a solid state weld joint (not numbered) present, but no reference to the location of such a disclosure in the text of Bonneville is set forth. Applicant has carefully studied the text of Bonneville and can find no such disclosure. Bonneville discusses friction welding, but does not indicate whether the contemplated friction welding produces a solid state weld joint, as claimed, or a liquid state weld joint resulting from melting at the interface. If the rejection is maintained, Applicant asks that the Examiner indicate the precise location in Bonneville where there is a disclosure of a "solid state" weld joint.

A solid-state weld joint, as distinct from other types of weld joints and other types of joints, was chosen for the reasons discussed in para. [0013] and [0026]-[0029] of the present Specification. Unless the prior art reference discloses such a "solid state" weld joint, it cannot anticipate the claimed invention.

Claim 8 recites in part: "the turbine blades are bonded to the ring". The explanation of the rejection does not address claim 8, and Applicant can find no disclosure of this limitation in Bonneville. If the rejection is maintained, Applicant asks that the Examiner indicate the precise location in Bonneville where there is a disclosure that "the turbine blades are bonded to the ring."

Claim 9 recites in part: "the turbine blades are mechanically affixed to the ring but not bonded to the ring." The explanation of the rejection does not address claim 9, and Applicant can find no disclosure of this limitation in Bonneville. If the rejection

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is maintained, Applicant asks that the Examiner indicate the precise location in Bonneville where there is a disclosure that "the turbine blades are mechanically affixed to the ring but not bonded to the ring."

Claim 10 recites in part: "the weld joint is a solid state inertia weld joint." The explanation of the rejection does not address claim 10, and Applicant can find no disclosure of this limitation in Bonneville. If the rejection is maintained, Applicant asks that the Examiner indicate the precise location in Bonneville where there is a disclosure that "the weld joint is a solid state inertia weld joint".

Applicant asks that the Examiner reconsider and withdraw this ground of rejection.

### 3. Rejection under 35 USC 102(b) over Lamatsch

Claims 1 and 8-10 are rejected under 35 USC 102 as anticipated by Lamatsch US Patent 3,582,605. Applicant traverses this ground of rejection.

Claim 1 recites in part:

"a solid state weld joint between the central disk hub and the ring of the bladed ring" [emphasis added]

Lamatsch has no such disclosure. The explanation of the rejection asserts at page 4, lines 7-8 that there is a "solid state weld joint 36", but no reference to the location of such a disclosure in the text of Lamatsch is set forth. Applicant has carefully studied the text of Lamatsch and can find no such disclosure. Lamatsch discloses a "welding seam 36" at col. 2, line 67, but there is no disclosure that it is a "solid state weld joint" as recited in claim 1. If the rejection is maintained, Applicant asks that the Examiner indicate the precise location in Lamatsch where there is a disclosure of a "solid state" weld joint.

A solid-state weld joint, as distinct from other types of weld joints and other types of joints, was chosen for the reasons discussed in para. [0013] and [0026]-



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[0029] of the present Specification. Unless the prior art reference discloses such a "solid state weld joint", it cannot anticipate the claimed invention.

Claim 10 recites in part: "the weld joint is a solid state inertia weld joint." The explanation of the rejection does not address claim 10, and Applicant can find no disclosure of this limitation in Lamatsch. If the rejection is maintained, Applicant asks that the Examiner indicate the precise location in Lamatsch where there is a disclosure that "the weld joint is a solid state inertia weld joint".

Applicant asks that the Examiner reconsider and withdraw this ground of rejection.

#### 4. Rejection under 35 USC 102(b) over Amos

Claims 1 and 8-10 are rejected under 35 USC 102 as anticipated by Amos US Patent 5,746,579. Applicant traverses this ground of rejection.

Claim 1 recites in part:

"a solid state weld joint between the central disk hub and the ring of the bladed ring" [emphasis added]

Amos has no such disclosure. The explanation of the rejection asserts at page 4, lines 13-14 that there is a solid state weld joint (not numbered) present, but no reference to the location of such a disclosure in the text of Amos is set forth. Applicant has carefully studied the text of Amos and can find no such disclosure. If the rejection is maintained, Applicant asks that the Examiner indicate the precise location in Amos where there is a disclosure of a "solid state" weld joint.

Amos discloses at col. 3, lines 16-21 several types of weld processes, such as narrow gap, gas metal arc, submerged arc, gas tungsten arc, laser beam and plasma arc welding techniques. None of these techniques produces a "solid state weld joint" as that term is used in the present application and defined in para. [0026] of the Specification.

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A solid-state weld joint, as distinct from other types of weld joints and other types of joints, was chosen for the reasons discussed in para. [0013] and [0026]-[0029] of the present Specification. Unless the prior art reference discloses such a "solid state" weld joint, it cannot anticipate the claimed invention.

Claim 8 recites in part: "the turbine blades are bonded to the ring". The explanation of the rejection does not address claim 8, and Applicant can find no disclosure of this limitation in Amos. If the rejection is maintained, Applicant asks that the Examiner indicate the precise location in Amos where there is a disclosure that "the turbine blades are bonded to the ring."

Claim 9 recites in part: "the turbine blades are mechanically affixed to the ring but not bonded to the ring." The explanation of the rejection does not address claim 9, and Applicant can find no disclosure of this limitation in Amos. If the rejection is maintained, Applicant asks that the Examiner indicate the precise location in Amos where there is a disclosure that "the turbine blades are mechanically affixed to the ring but not bonded to the ring."

Claim 10 recites in part: "the weld joint is a solid state inertia weld joint." The explanation of the rejection does not address claim 10, and Applicant can find no disclosure of this limitation in Amos. If the rejection is maintained, Applicant asks that the Examiner indicate the precise location in Amos where there is a disclosure that "the weld joint is a solid state inertia weld joint".

Applicant asks that the Examiner reconsider and withdraw this ground of rejection.

**B. Rejection under 35 USC 103(a)**

Claims 2-7 are rejected under 35 USC 103 over Bonneville '549 in view of Egan US Patent 4,592,120. Applicant traverses this ground of rejection.

Claims 2-7 depend from claim 1, and incorporate its limitations. Bonneville does not teach the limitations of claim 1 for the reasons stated above in relation to the sec. 102 rejection of claim 1, and which are incorporated here. Egan adds

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nothing in this regard, and specifically does not teach that any weld joint in Bonneville is a solid state weld joint as recited in claim 1.

Egan teaches a method for forming a turbine wheel with integral blades. A coated hub 14 made of one material is placed into a tooling structure with coated blades 12 made of another material, such that the coated outer surface of the hub 14 is in facing-but-spaced-apart relation to the roots 18 of the blades 12. Then, "A super heated melt is vacuum poured into the fixture 24 to case a blade ring 30 and to effect melting of the ADB alloy coatings 16 and 20..." (col. 2, lines 26-33) Egan therefore teaches directly away from the present approach as recited in claim 1, "a solid state weld joint between the central disk hub and the ring of the bladed ring". It is a well-established principle of law that a prima facie case of obviousness may not properly be based on a reference which teaches away from the present invention as recited in the claims.

"A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant. In re Spinnoble, 160 USPQ 237 244 (CCPA 1969)...As "a useful general rule,"..."a reference that 'teaches away' can not create a prima facie case of obviousness." In re Gurley, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994)"

In this case, a person of ordinary skill upon reading Egan would be directed away from a "solid state weld joint" as recited in claim 1. Any attempt to rely upon Egan only for its helpful teachings while ignoring unhelpful or contrary teachings constitutes a per se impermissible hindsight reconstruction. In In re Mercer, 185 USPQ 774, 778 (CCPA 1975), the CCPA stated:

"The Board's approach amounts in substance, to nothing more than a hindsight 'reconstruction' of the claimed invention by relying on isolated

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teachings of the prior art without considering the over-all context within which those teachings are presented. Without the benefit of appellant's disclosure, a person having ordinary skill in the art would not know what portions of the disclosure of the reference to consider and what portions to disregard as irrelevant, or misleading. See *In re Wesslau*, 53 CCPA 746, 353 F.2d 238, 147 USPQ 391 (1965)." [emphasis added]

Claim 2 recites in part:

"the ring is made of a first material, and the turbine blades are made of a second material".

Although the explanation of the rejection argues that "the ring 50, 52 is made of a first material, and the turbine blades 12, 42 are made of a second material..." (Office Action, page 5, lines 15-16), Applicant can find no discussion in Egan of what the ring is made of. If the Examiner is able to find any such disclosure in Egan, Applicant asks that it be pointed out and made of record. Otherwise, one cannot say anything about the material that the cast ring is made of, and cannot say that there is a teaching that the ring is made of a material different from the turbine blades.

Claim 3 recites in part:

"the ring is made of a first nickel-base superalloy, and the turbine blades are made of a second nickel-base superalloy".

Applicant incorporates the discussion of claim 2 above. Additionally, there is no teaching in Egan that the ring is made of a nickel-base superalloy.

Claim 4 recites in part:

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"the ring and the central disk hub are made of a first material, and the turbine blades are made of a second material".

Applicant incorporates the discussion of claim 2 above. Additionally, there is no teaching in Egan that the ring and the hub are made of the same material.

Claim 5 recites in part:

"the ring and the central disk hub are made of a first nickel-base superalloy, and the turbine blades are made of a second nickel-base superalloy".

Applicant incorporates the discussion of claims 2 and 3 above. Egan does not disclose that the ring and the hub are made of the same material, nor that they are made of the same nickel-base superalloy.

Claim 6 recites in part:

"the ring is made of a first material, the turbine blades are made of a second material, and the central disk hub is made of a third material."

Applicant incorporates the discussion of claims 2-5 above. Egan does not disclose that the ring is made of a material different from the turbine blades and the hub.

Claim 7 recites in part:

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"the ring has a first grain size, the central disk hub has a second grain size smaller than the first grain size, and the solid state weld joint has a third grain size smaller than the second grain size".

That is, of these three regions, the ring has the largest grain size, the hub has a grain size smaller than that of the ring, and the solid state weld joint has a grain size smaller than that of the hub. See Figure 4 of the present application to illustrate this limitation. The text of Egan does not have a teaching regarding relative grain sizes. The only clue about grain sizes of the three regions is found in Figure 8, which shows all three regions. Only a portion of a single grain is shown for the hub, suggesting that the grain size of the hub is larger than that of the ring 50. Egan therefore does not teach the grain size limitations of claim 7. Egan also does not teach that the joint is a "solid state weld joint". The explanation of the rejection states at page 6, lines 1-2 that "the central disk hub 14 has a second grain size smaller than the first grain size..." Applicant can find no such teaching in Egan. If the rejection is maintained, Applicant asks that the specific basis for this asserted teaching be stated with particularity.

The present rejection is a sec. 103 combination rejection. It is well established that a proper sec. 103 combination rejection requires more than just finding teachings in the references of the elements recited in the claim (but which was not done here). To reach a proper teaching of an article or process through a combination of references, there must be stated an objective motivation to combine the teachings of the references, not a hindsight rationalization in light of the disclosure of the specification being examined. MPEP 2143 and 2143.01. See also, for example, In re Fine, 5 USPQ2d 1596, 1598 (at headnote 1) (Fed.Cir. 1988), In re Laskowski, 10 USPQ2d 1397, 1398 (Fed.Cir. 1989), W.L. Gore & Associates v. Garlock, Inc., 220 USPQ 303, 311-313 (Fed. Cir., 1983), and Ex parte Levengood, 28 USPQ2d 1300 (Board of Appeals and Interferences, 1993); Ex parte Chicago Rawhide Manufacturing Co., 223 USPQ 351 (Board of Appeals 1984). As stated in In re Fine at 5 USPQ2d 1598:

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"The PTO has the burden under section 103 to establish a prima facie case of obviousness. [citation omitted] It can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references."

And, at 5 USPQ2d 1600:

"One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention."

Following this authority, the MPEP states that the examiner must provide such an objective basis for combining the teachings of the applied prior art. In constructing such rejections, MPEP 2143.01 provides specific instructions as to what must be shown in order to extract specific teachings from the individual references:

"Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention when there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992)."

\* \* \* \* \*

"The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990)."

\* \* \* \* \*

"A statement that modifications of the prior art to meet the claimed invention would have been 'well within the ordinary skill of the

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art at the time the claimed invention was made' because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a prima facie case of obviousness without some objective reason to combine the teachings of the references. Ex parte Levengood, 28 USPQ2d 1300 (Bd.Pat.App.& Inter. 1993)."

Here, there is set forth no objective basis for combining the teachings of the references in the manner used by this rejection, and selecting the helpful portions from each reference while ignoring the unhelpful portions. An objective basis is one set forth in the art or which can be established by a declaration, not one that can be developed in light of the present disclosure. If the rejection is maintained, Applicant asks that the Examiner set forth the objective basis found in the references themselves for combining the teachings of the references, and for adopting only the helpful teachings of each reference and disregarding the unhelpful teachings of the reference.

The explanation of the rejection suggests that the rationale is found in a "...purpose of providing..." (Office Action, page 6, lines 7-9) The problem with this position is that the two references teach incompatible techniques. Bonneville teaches a welding approach for joining the ring to the hub, and Egan teaches a casting approach. If the rejection is maintained, there must stated be an objective basis for selecting the joining technique of Bonneville over that of Egan in making the combination of teachings.

Applicant asks that the Examiner reconsider and withdraw this ground of rejection.



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### CONCLUSION

In view of the above, Applicant respectfully requests reconsideration of the Application and withdrawal of the outstanding objections and rejections. As a result of the amendments and remarks presented herein, Applicant respectfully submits that claims are not anticipated by nor rendered obvious by the cited art either alone or in combination and thus, are in condition for allowance. As the claims are not anticipated by nor rendered obvious in view of the applied art, Applicant requests allowance of all of the remaining claims in a timely manner. If the Examiner believes that prosecution of this Application could be expedited by a telephone conference, the Examiner is encouraged to contact the Applicant.

This Amendment/Response has been filed within three (3) months of the mailing date of the Office Action and it is believed that no fees are due with the filing of this paper. In the event that Applicants are mistaken in their calculations, the Commissioner is hereby authorized to deduct any fees determined by the Patent Office to be due from the undersigned's Deposit Account No. 50-1059.

Applicant respectfully requests entry of the above amendment and allowance of the claims.

The Commissioner is hereby authorized to charge any additional fees and credit any overpayments to Deposit Account No. 50-1059.

Dated: April 15, 2005

Respectfully submitted,

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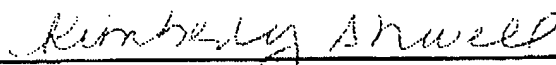
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Filed: October 21, 2003

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